What is claimed is:

1. A substrate comprising, on a conductive pattern, an insulating layer in which pinholes are filled up with an insulating material different from the material of the insulating layer.

2. A substrate for use in a display device, the substrate comprising, on a conductive pattern, an insulating layer in which pinholes are filled up with an insulating material different from the material of the insulating layer.

3. An in-substrate selective electric chemical treatment system comprising:

holding means for holding an insulating substrate;

an electrode connected, in the periphery of the insulating substrate, to a conductive pattern formed on the insulating substrate held by the holding means;

chemical solution confining means for confining a chemical solution in only a specified region on the insulating substrate, the specified region being smaller than the insulating substrate or slightly larger than an image displaying section on an active substrate formed on the insulating substrate;

a reversed polarity electrode plate for applying an electric charge to the chemical solution, the electric charge having polarity opposite to that of the conductive pattern; and

chemical solution supplying and discharging means for supplying and discharging the chemical solution to and from the

insulating substrate.

4. An in-substrate selective electric chemical treatment system according to Claim 3,

wherein the reversed polarity electrode plate is a double-purpose reversed polarity electrode plate having a specified size and shape smaller than the insulating substrate in accordance with a specified rule or slightly larger than the image displaying section of the active substrate formed on the insulating substrate in accordance with a specified rule, the double-purpose reversed polarity electrode plate also serving as the chemical solution confining means for confining the chemical solution in a gap obtained by making the double-purpose reversed polarity electrode plate close to the insulating substrate.

5. An in-substrate selective electric chemical treatment system according to Claim 3,

wherein the reversed polarity electrode plate is a double-purpose reversed polarity electrode plate which is smaller than the insulating substrate in accordance with a specified rule or slightly larger than the image displaying section of the active substrate formed on the insulating substrate in accordance with a specified rule, and which also serves as the chemical solution confining means with a porous soft material plate whose surface facing the insulating substrate is impregnated with the chemical solution.

6. An in-substrate selective electric chemical treatment system according to Claim 3,

wherein the reversed polarity electrode plate has a specified size and shape smaller than the insulating substrate in accordance with a specified rule or slightly larger than the image displaying section of the active substrate formed on the insulating substrate in accordance with a specified rule; and

wherein the chemical solution confining means is a frame-like container type chemical solution confining means which has, at the upper and lower ends thereof, an opening slightly larger than the reversed polarity electrode plate having the specified size and shape and which is a frame-like container in which a flexible sealing material is attached to an area around the opening at the lower end;

the treatment system further comprising pressing means for pressing the frame-like container type chemical solution confining means against the insulating substrate, with the reverse polarity electrode plate being stored within the frame-like container type chemical solution confining means.

7. An in-substrate selective electric chemical treatment system according to Claim 3,

wherein the chemical solution confining means is a box-like container type chemical solution confining means which retains the reversed polarity electrode plate therein and which is a box-like container having a flexible sealing material embedded in an open end that is smaller than the insulating substrate in accordance with a specified rule or slightly larger than the image displaying section of the active substrate formed on the insulating substrate in accordance

with a specified rule;

the treatment system further comprising pressing means for pressing the box-like container type chemical solution confining means against the insulating substrate through the sealing member.

8. An in-substrate selective electric chemical treatment system according to Claim 6, further comprising washing means for washing, with a washing liquid, the chemical solution away from a chemical solution treatment space after completion of a treatment such as inspection, the chemical solution treatment space being formed by pressing the frame-like container type chemical solution confining means against the insulating substrate.

9. An in-substrate selective electric chemical treatment system according to Claim 4 or 5, further comprising electrode plate temperature controlling means for controlling the temperature of the reversed polarity electrode plate by flowing temperature-controlling liquid within the reversed polarity electrode plate.

10. An in-substrate selective electric chemical treatment system according to Claim 6, 7 or 8, further comprising:

chemical solution circulating means for circulating the chemical solution within the chemical solution treatment space formed by pressing the frame-like container type chemical solution confining means or the box-like container type chemical solution confining means against the insulating substrate; and

chemical solution temperature controlling means for controlling the temperature of the chemical solution.

11. An electric chemical treatment process for treating a substrate by use of an in-substrate selective electric chemical treatment system which comprises (a) holding means for holding an insulating substrate; (b) an electrode connected, in the periphery of the insulating substrate, to a conductive pattern formed on the insulating substrate held by the holding means; (c) chemical solution confining means for confining a chemical solution in only a specified region, the specified region being smaller than the insulating substrate or slightly larger than an image displaying section on an active substrate formed on the insulating substrate; (d) a reversed polarity electrode plate for applying an electric charge to the chemical solution, the electric charge having polarity opposite to that of the conductive pattern; and (e) chemical solution supplying and discharging means for supplying and discharging the chemical solution to and from the insulating substrate,

the treatment process comprising:

a holding step of holding the insulating substrate having the conductive pattern on the holding means;

a chemical solution confining step of supplying a predetermined amount of the specified chemical solution to the specified region on the insulating substrate and confining it in the specified region;

a contacting step of making the reversed polarity electrode plate close to the insulating substrate such that the reversed polarity electrode plate comes in contact with the chemical solution on the

upper surface of the insulating substrate;

a polarity connecting step of bringing the electrode into contact with the conductive pattern in the periphery of the insulating substrate; and

a treatment step of carrying out a specified treatment by applying a specified direct current between the electrode and the reversed polarity electrode plate.

12. An electric chemical treatment process for treating a substrate by use of an in-substrate selective electric chemical treatment system which comprises (a) holding means for holding an insulating substrate; (b) an electrode connected, in the periphery of the insulating substrate, to a conductive pattern formed on the insulating substrate held by the holding means; (c) a reversed polarity electrode plate having a specified size and shape smaller than the insulating substrate in accordance with a specified rule or slightly larger than an image displaying section of an active substrate formed on the insulating substrate in accordance with a specified rule; (d) container type chemical solution confining means which is a frame-like or box-like container having, at its lower end or its upper and lower ends, an opening slightly larger than the reversed polarity electrode plate and having a flexible sealing material attached to an area around the opening at the lower end; and (e) pressing means for pressing the container type chemical solution confining means against the insulating substrate, with the reversed polarity electrode plate being stored in the container type

chemical solution confining means;

the treatment process comprising:

a holding step of holding the insulating substrate having the conductive pattern on the holding means;

a chemical solution supplying step of supplying a specified chemical solution to a space defined by the container type chemical solution confining means and the insulating substrate;

an electrode connecting step of connecting the electrode to the conductive pattern in the periphery of the insulating substrate; and

a substrate treatment step of applying a direct current between the electrode and the reversed polarity electrode plate to apply a specified treatment to the insulating substrate.

13. A liquid crystal device comprising an insulating substrate and a liquid crystal packed between the insulating substrate and an opposed substrate or color filter, the insulating substrate having, on one main surface,

a plurality of scan lines each composed of one or more metal layers, or either or both of common capacitance lines and opposed electrodes in addition to scan lines;

a plurality of signal lines each composed of one or more metal layers and crossing the scan lines at right angles through one or more insulating layers;

an insulated gate transistor provided for every crossover point at which a scan line and a signal line cross each other; and

at least one pixel electrode connected to a drain of the

insulated gate transistors;

wherein pinholes of the insulating layer formed on lines are filled up with an insulating material, the lines excluding the signal lines and drain lines but including the scan lines, or either or both of the common capacitance lines and the opposed electrodes in addition to the scan lines.

14. A liquid crystal device according to Claim 13,

wherein the scan lines or either or both of the common capacitance lines and the opposed electrode in addition to the scan lines on the substrate are made from a metal that can be anodized, and

wherein the bottoms of the pinholes of the insulating layer, which covers the scan lines or either or both of the common capacitance lines and the opposed electrodes in addition to the scan lines, are filled up with an anodic oxide of said metal.

15. A liquid crystal device according to Claim 13, wherein pinholes of the insulating layer formed on the scan lines or either or both of the common capacitance lines and the opposed electrodes in addition to the scan lines are filled up with an organic insulating material by electrodeposition.

16. A process of inspecting an active substrate in a liquid crystal device comprising an insulating substrate and a liquid crystal packed between the insulating substrate and an opposed substrate or color filter, the insulating substrate having, on one main surface,

a plurality of scan lines each composed of one or more metal

layers, or either or both of common capacitance lines and opposed electrodes in addition to scan lines;

a plurality of signal lines each composed of one or more metal layers and crossing the scan lines at right angles through one or more insulating layers;

an insulated gate transistor provided for every crossover point at which a scan line and a signal line cross each other; and

at least one pixel electrode connected to a drain of the insulated gate transistors;

the process comprising:

a holding step of holding the insulating substrate, with the surface where the scan lines and the signal lines exist facing up;

an electrode connecting step of connecting an electrode to the scan lines of the held insulating substrate;

a chemical solution confining step of retaining, on the held insulating substrate, a reversed polarity electrode plate having a polarity opposite to the polarity of said electrode and confining an electrolytic solution between the reversed polarity electrode plate and a specified position on the insulating substrate; and

a pinhole detection step of inspecting the presence or absence of pinholes on the insulating layer formed on the scan lines or either or both of the common capacitance lines and the opposed electrodes in addition to the scan lines by a current measurement which is made by applying an electric field between the reversed polarity electrode plate and the scan lines, or either or both of the common capacitance

lines and the opposed electrodes in addition to the scan lines, while coordinating with the chemical solution confining step.

17. A process of repairing an active substrate in a liquid crystal device comprising an insulating substrate and a liquid crystal packed between the insulating substrate and an opposed substrate or color filter, the insulating substrate having, on one main surface,

a plurality of scan lines each composed of one or more metal layers, or either or both of common capacitance lines and opposed electrodes in addition to scan lines;

a plurality of signal lines each composed of one or more metal layers and crossing the scan lines at right angles through one or more insulating layers;

an insulated gate transistor provided for every crossover point at which a scan line and a signal line cross each other; and

at least one pixel electrode connected to a drain of the insulated gate transistors;

the process comprising:

a holding step of holding the insulating substrate, with the surface where the scan lines and the signal lines exist facing up;

an electrode connecting step of connecting an electrode to the scan lines of the held insulating substrate;

a chemical solution confining step of retaining, on the held insulating substrate, a reversed polarity electrode plate having a polarity opposite to the polarity of said electrode and confining a chemical solution between the reversed polarity electrode plate and a

specified position on the insulating substrate; and

an inactivating step of electrically inactivating a scan line within a pinhole of the insulating layer formed on the scan lines or either or both of the common capacitance lines and the opposed electrodes in addition to the scan lines or electrically inactivating either or both of a common capacitance line and an opposed electrode in addition to a scan line within the pinhole, the electric inactivation being carried out by applying an electric field between the reversed polarity electrode plate and the scan lines or either or both of the common capacitance lines and the opposed electrodes in addition to the scan lines, while coordinating with the chemical solution confining step.

18. An active substrate repairing process according to Claim 17,

wherein the inactivating step is an anodic oxidation step of anodizing the scan line or either or both of the common capacitance line and the opposed electrode in addition to the scan line within the pinhole of the insulating layer formed on the scan lines or either or both of the common capacitance lines and the opposed electrodes in addition to the scan lines, by applying an electric field between the reversed polarity electrode plate and an active substrate in which the scan lines or either or both of the common capacitance lines and the opposed electrodes in addition to the scan lines are each made of a metal layer that can be anodized.

19. An active substrate repairing process according to Claim

17,

wherein the chemical solution confining step is an electrodeposition solution confining step of confining an insulating organic electrodeposition solution as the chemical solution, and

wherein the inactivating step is an filling-up insulation step of filling the pinhole of the insulating layer, which is formed on the scan lines or on either or both of the common capacitance lines and the opposed electrodes in addition to the scan lines, up with an organic insulating material, by applying an electric field between the reversed polarity electrode plate and the insulating layer having the scan lines or either or both of the common capacitance lines and the opposed electrodes in addition to the scan lines.

20. An active substrate repairing process according to Claim 17,

wherein the inactivating step is an electric corrosion step of electrically corroding the scan line or either or both of the common capacitance line and the opposed electrode in addition to the scan line within the pinhole of the insulating layer formed on the scan lines or either or both of the common capacitance lines and the opposed electrodes in addition to the scan lines, by applying an electric field between the reversed polarity electrode plate and an active substrate in which the scan lines or either or both of the common capacitance lines and the opposed electrodes in addition to the scan lines are each made of a metal layer that can be electrically processed.

21. An in-substrate selective electric chemical treatment system according to Claim 7, further comprising fluid supply and discharge means for supplying and discharging at least one of a chemical solution, washing liquid and drying gas to and from the box-like container.

22. A chemical treatment process for a substrate by use of an in-substrate selective chemical treatment system having (a) a stage for holding an insulating substrate, (b) a box-like container in which a flexible sealing material is embedded around an open end in a region, which is smaller than the insulating substrate or slightly larger than an active substrate formed on the insulating substrate, the open end being smaller than said region, (c) a mechanism for pressing the box-like container against the insulating substrate, and (d) a mechanism for supplying and discharging a chemical solution, pure water or drying gas to and from the pressed box-like container,

the process comprising:

a holding step of holding the insulating substrate on the stage;

a pressing step of pressing the box-like container against the insulating substrate;

a specified treatment step of applying a specified chemical treatment to the insulating substrate by supplying the chemical solution to the box-like container;

a washing step of washing the inside of the box-like container and the insulating substrate by supplying a washing fluid to them

after discharge of the chemical solution; and

a drying step of drying the inside of the box-like container and the insulating substrate by supplying drying gas to them after discharge of the washing fluid.

23. A substrate having a conductive pattern, wherein pinholes of an insulating film formed on metallic signal lines are insulated by an oxide of the metal of the metallic signal lines.

24. A substrate according to Claim 1 or 23, which is for use in a display device having a liquid crystal, an optical shutter or an optical logic element.